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Twin Prairie

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

ENVIRONMENTAL ASSESSMENT NO. OR090-02-06
Twin Prairie Timber Sale

I. INTRODUCTION

A. BACKGROUND

This action proposes timber harvest and other forest management activities within a project area located in Section 3, Township 22 South, Range 3 West, Willamette Meridian, Lane County, Oregon in the Bureau of Land Management (BLM).

B. PURPOSE OF AND NEED FOR THE ACTION

The project area is within the Matrix land use allocation (LUA) and has management objectives for Connectivity and Riparian Reserves. Within the Connectivity portion of the project area, the purpose of the action is to promote the development of late-successional forest structure over longer rotations while providing an output of merchantable timber and maintaining forest health and productivity. The need for the action is established in the *Eugene District Record of Decision and Resource Management Plan* (RMP), June 1995, which directs that timber be harvested from Matrix lands to provide a sustainable supply of timber, and by the fact that suppression mortality is occurring in fully-stocked areas.

Within the Riparian Reserves, the purpose of the action is to hasten the development of some late-successional forest structural characteristics. The need for action in the Riparian Reserves is established in the *RMP*, which directs that silvicultural practices be applied in Riparian Reserves to acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives (RMP, p. 24).

C. CONFORMANCE WITH LAND USE PLAN

All alternatives are in conformance with the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl,* April 1994 (ROD), and the *RMP*, as amended by the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines,* USDA Forest Service and USDI Bureau of Land Management, January 2001.

Additional site-specific information is available in the Twin Prairie Timber Sale project analysis file. This file and the above reference documents are available for review at the Eugene District Office.

II. ISSUES

A. ISSUES SELECTED FOR ANALYSIS

The following issues were identified during development of the action alternatives:

ISSUE 1: *How will timber harvests affect attainment of Aquatic Conservation Strategy (ACS) objectives at the watershed scale?*

In order for a proposal to comply with the Northwest Forest Plan, it must be shown that the project, at a minimum, does not prevent or retard attainment of the nine Aquatic Conservation Strategy objectives on a watershed or landscape scale. Activities described in the alternatives may have some effect on BLM's ability to meet these objectives.

ISSUE 2: *How will timber harvests affect northern spotted owl foraging and dispersal habitat?*

The project area is located at the edge of the home range of one historic spotted owl site and may provide foraging habitat. The project area may also provide dispersal habitat for owls seeking unoccupied territory. Timber harvests may affect the quantity and quality of foraging and dispersal habitat within the project area.

B. ISSUES CONSIDERED BUT NOT ANALYZED

Survey and Manage Species: The effects of timber harvest on Survey and Manage species was not analyzed. Surveys for Survey and Manage species were conducted to protocol. All Survey and Manage species found would be protected in accordance with the Management Recommendations for each species. Therefore, none of the alternatives involves timber harvest that would affect Survey and Manage species.

III. PROPOSED ACTION AND ALTERNATIVES

The project area is 200 acres. Alternatives 1 and 3 consider timber harvest and other forest management activities on approximately 85 acres. Alternative 2 considers timber harvest and other forest management activities on approximately 100 acres. Alternative 4 considers timber harvest and other forest management activities on approximately 78 acres. Alternative 5 (Proposed Action) considers timber harvest and other forest management activities on approximately 93 acres. Table 1 compares harvest levels and design features between the Proposed Action and Alternatives

Table 1. Twin Prairie Alternative Comparison

		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Proposed Action
Matrix Moderate Thin Acres		50	50	85	43	45
Matrix Moderate Thin Volume		11 MBF*/acre	11 MBF/acre	9.5 MBF/acre	11 MBF/acre	11 MBF/acre
Matrix Heavy Thin Acres		35	35	0	35	35
Matrix Heavy Thin Volume		14.5 MBF/acre	14.5 MBF/acre	0 MBF/acre	14.5 MBF/acre	14.5 MBF/acre
Activity in Riparian Reserves		Landing, skid trail Stream 8; 2 skid trails + 2 landings Stream 12; cross drain culvert installation	**Moderate thin 15 acres** @ 11 MBF/acre; 2 100-foot haul roads, Stream 12; cross drain culvert installation; ground based yarding	Landing, skid trail Stream 8; 2 skid trails + 2 landings Stream 12; cross drain culvert installation	None	**Moderate thin 13 acres** @ 11 MBF/acre; ground-based yarding
Volume (MMBF)**	Matrix	1.1	1.1	0.8	0.98	1.0
	Riparian	0	0.2	0.0	0.00	0.1
	Total	1.1	1.3	0.8	0.98	1.1
Road Construction		400 feet temporary	600 feet temporary	400 feet temporary	700 feet temporary	870 feet temporary
Road Renovation		930 feet	930 feet	930 feet	930 feet	930 feet

*MBF = thousand board feet ** MMBF = million board feet

A. ALTERNATIVE 1 - Density Management (Matrix only)

Alternative 1 is designed to promote the development of late-successional forest structure over longer rotations while providing forest products and maintaining forest health and productivity. This alternative proposes thinning the Matrix lands from below to two densities. Approximately 85 acres would be treated, and approximately 1 million board feet (MMBF) would be harvested.

Silviculture

All trees not specifically identified for retention would be cut.

No trees would be planted; therefore, no site preparation would be needed. Large landing piles would be covered and burned, with the exception of those on Roads No. 21-3-33 and 22-3-3.4.

Retention

Throughout the harvest area, conifers would be thinned from below, reserving the largest, most vigorous trees. Spacing would be varied as needed. Snags and hardwood trees that do not present a safety hazard would be reserved. Snags and hardwoods that pose a safety hazard to woods workers would be felled and retained for coarse woody debris. Downed woody debris of decay classes 3, 4, and 5 would be retained where possible.

In the *moderate thin* area, approximately 105 trees per acre (TPA) would be retained. The estimated yield is 11 thousand board feet (MBF) per acre from 50 acres.

In the *heavy thin* area, approximately 55 TPA would be retained. The estimated yield is 14.5 MBF per acre from 35 acres. In this area, minor conifer species would generally be selected for retention over Douglas-fir, especially in those areas where they occur infrequently. However, a healthy, vigorous tree would be selected over one with poor vigor.

Reserves

Riparian Reserves widths for non-fishbearing streams in the Upper Coast Fork Willamette Watershed are based on the height of one site-potential tree (200 feet) on both sides of the stream; for fishbearing streams Riparian Reserve widths are twice the height of one site-potential tree (400 feet). This is in accordance with the standards and guidelines in the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl* (NSO ROD) (Appendix C, pp. 31-38).

There would be no activity within the Riparian Reserves, with the following exceptions: 1) a landing area on Road No. 22-3-3.2 and a designated skid trail, both within the outer 100 feet of the Riparian Reserve for Stream 8, to facilitate yarding Unit A; 2) two designated skid trails within the 400-foot Riparian Reserve of Stream 12, with a landing for each on Road No. 21-3-33; and 3) installation of a culvert within the 400-foot Riparian Reserve of Stream 12.

Red tree vole surveys were completed in Winter 2001. Two active nests and one inactive nest were found. The active red tree vole nest trees would be protected by an 11-acre reserve in accordance with the Management Recommendations. The reserve may be combined with pre-existing reserves, or with another red tree vole reserve, to total 11 acres, as long as it is configured such that the edge of the reserve is at least one site-tree length feet from each red tree vole nest tree.

Twenty-four *Megomphix hemphilli* sites would have 1/4 acre reserves placed around them. The reserves may be combined with pre-existing reserves, or with each other, to total 1/4 acre.

An *Otidea leporina* site would have a 2.8 acre reserve around it.

Roads and Yarding

A cross drain culvert would be placed under Road No. 21-3-33 west of the landings used to log Units B and C and within the 400-foot Riparian Reserve of Stream 12.

Approximately 400 feet of temporary road would be constructed (Spur B) and 930 feet would be renovated (Spur A). Roads would have a 14-foot subgrade width with no ditch, outsloped where possible,

with a natural surface and reduced clearing limits. Newly constructed and renovated roads would be blocked and waterbarred between logging seasons.

Cable yarding would be required in areas where slopes are greater than 35%. Ground-based yarding would be allowed in areas where slopes are no greater than 35%. Two designated skid trails in the 400-foot Riparian Reserve of Stream 12 would allow access to yard Matrix areas. Ground-based yarding equipment would not be expected to enter Riparian Reserves otherwise. Yarding methods would adhere to the relevant Best Management Practices (BMPs) listed in Appendix C of the RMP.

No construction is expected for the landing areas on Road No. 21-3-33 that would service the designated skid trails. However, a limited number of trees (those approved for cutting by BLM contract administrators) would be cut on the south side of Road No. 21-3-33 to create a half-circle area for each landing with a radius of 50-70 feet to allow space for safely loading logs onto trucks. These yarding operations would be limited to one season. Similarly, no construction is expected for the landing area on Road No. 22-3-3.2. Again, a limited number of trees would be cut on the east side of the road to create a half-circle area for the landing with a radius of 50-70 feet to allow space for safely loading logs onto trucks. Other design features in these areas would include minimizing disturbance to the ditch line and cut banks; restoring and revegetating the ditch line in the same season of use; and utilizing silt screens or other erosion control measures in the ditch line as needed.

One of the BMPs available for selection is to "avoid locating log landings within 50 feet of riparian/wetland areas." (RMP p. 157). Including the landings on Road 21-3-33 in this alternative signifies that this BMP would not be selected.

Completion of the project would take no more than three years. Upon completion of the project, skid trails and newly constructed and renovated roads and landings would be blocked and subsoiled (i.e., mechanically breaking up the compacted area of the road).

B. ALTERNATIVE 2 - Density Management with Riparian Reserve Treatment

This alternative proposes treating the Matrix portion and certain Riparian Reserves by density management. Approximately 100 acres would be treated, and approximately 1.2 MMBF would be harvested.

Retention

All of the treated Riparian Reserve areas would be thinned using the *moderate thinning* guidelines described in Alternative 1 (retain 105 TPA).

The Matrix areas would be treated as described in Alternative 1.

Reserves

The outer 100 feet of Riparian Reserves for Streams 3, 5, 8, and 10 would be treated. Where Road No. 21-3-33 follows along Stream 12, the treatment boundary would be to the south side of the road, with a 20-30 feet uncut buffer remaining south of Road No. 21-3-33. Where Stream 12 turns south of Road No. 21-3-33, the outer 100 feet of the 400-foot Riparian Reserve would be treated. Approximately 15 Riparian Reserve acres would be treated.

The designated skid trails and landing areas off of Road No. 21-3-33 as described in Alternative 1 would be replaced with haul roads as described below.

Roads and Yarding

Two spurs (C and D) would be constructed within the 400-foot Riparian Reserve of Stream 12, instead of the skid roads in Alternative 1. These spurs would be approximately 100 feet each, with 14-foot subgrades, no ditch, outsloped where possible, with a natural surface and reduced clearing limits. They would be constructed, used and decommissioned within the same season.

Ground-based yarding would be allowed, but not required, within the treated portion of the 400-foot Riparian Reserve of Stream 12 on the south side of Road No. 21-3-33, and within the outer 100 feet of the 200-foot Riparian Reserve of Stream 8 on the east side of Road No. 22-3-3.2.

All other **Retention, Reserve,** and **Roads and Yarding** features, and all other **Silviculture** design features would be the same as Alternative 1.

C. ALTERNATIVE 3 - Density Management (Matrix) - Moderate Thin Only

This alternative proposes treating only the Matrix portion by density management. Approximately 85 acres would be treated, and approximately .8 MMBF would be harvested.

Retention

All of the treated areas would be thinned using the *moderate thinning* guidelines described in Alternative 1 (105 TPA). The average yield per acre would be lower because Alternative 1's "heavy thin" area has a lower stocking level. The estimated yield is 9.5 MBF per acre from 85 acres.

All other **Retention** features, and all other design features including **Silviculture, Reserves,** and **Roads and Yarding** would be the same as Alternative 1.

D. ALTERNATIVE 4 - Density Management (Matrix); No New Roads in Riparian Reserves

This alternative proposes treating only the Matrix portions that may be reached from existing roads and roads to be constructed in Matrix. Approximately 78 acres would be treated, and approximately .98 MMBF would be harvested.

Retention

Retention would be as described in Alternative 1. The *moderate thin* area would be reduced by approximately 6 acres (2 acres from Unit A, all of Unit C).

Reserves

There would be no activity in Riparian Reserves.

Roads and Yarding

Spur A would be renovated as described in Alternative 1. Spur B would be constructed as described in Alternative 1. Spur E (approximately 300 feet) would be constructed from an existing road south of the project area to reach the Matrix area between Streams 12 and 5. Spurs C and D of Alternative 2 would not be constructed. Landings would not be constructed on Roads 21-3-33 and 22-3-3.2, and design features associated with these landings would not be implemented.

The cross drain culvert would not be installed. Since there would be no harvest in the Riparian Reserves, there would be no yarding activities within them.

All other **Retention, Reserve** and **Roads and Yarding** features, and all other design features, including **Silviculture,** would be the same as Alternative 1.

E. ALTERNATIVE 5 (Proposed Action) - Density Management Matrix and Riparian Reserve; No New Roads in Riparian Reserves

This alternative proposes treating the Matrix and Riparian Reserve areas that may be reached from existing roads and roads to be constructed in Matrix. Approximately 93 acres would be treated and approximately 1.1 MMBF would be harvested.

Retention

Retention would be as described in Alternative 2. The moderate thin area would be reduced by approximately 4 Matrix acres and 4 Riparian Reserve acres (Unit C would not be harvested).

Reserves

Riparian Reserves would be treated as described in Alternative 2, except for the Riparian Reserve area of Unit C, which would not be treated. There would be no landings or new roads in Riparian Reserves. Approximately 12 Riparian Reserve acres would be treated.

Roads and Yarding

The cross drain culvert would not be installed. Spur A would be renovated, and Spur B would be constructed as described in Alternative 1. Spur E would be constructed as shown (approximately 470 feet). Yarding to Road Nos. 21-3-33 or 22-3-3.2 is not expected, and design features associated with this activity would not be implemented. Spurs C and D of Alternative 2 would not be constructed.

All other **Retention, Reserve** and **Roads and Yarding** features, and all other design features, including **Silviculture,** would be the same as Alternative 2.

F. ALTERNATIVE 6 - No Action

All timber harvest activities would be deferred; no management activities described under any of the action alternatives would occur, and no timber would be offered for sale at this time. Because the project area is within the Matrix land use allocation, it may be considered for future timber harvests even if this alternative is selected at this time.

G. ALTERNATIVES CONSIDERED BUT NOT ANALYZED

1. Heavy thin in Riparian Reserves: This alternative was not analyzed in detail due to windthrow concerns.
2. Rocking newly constructed and renovated roads: This alternative was not analyzed in detail because much of the stand topography is suitable for ground-based logging, which must take place during dry conditions; and because existing rocked roads would allow some winter (cable) logging if needed.
3. Helicopter logging: Use of a helicopter to yard an area of such low volume would not be cost efficient when compared to the cost of cable and ground-based yarding systems that are available due to the existing road network.

IV. EXISTING CONDITIONS

A. GENERAL SETTING

The project area is in the Willamette Province and in the Wilson Creek drainage of the Upper Coast Fork Willamette Watershed, formerly known as the Cottage Grove Lake/Big River Watershed. Watershed analysis has been completed (BLM Eugene District, Cottage Grove Lake/Big River Watershed Analysis, May 1997). The Cottage Grove Lake/Big River Watershed Analysis analyzed the condition of the Riparian Reserves in the watershed and established guidelines under which they should be treated. (Chapter 4, pages 4-6).

The plants and animals in this project area do not differ significantly from those discussed in the Eugene District Resource Management Plan/Environmental Impact Statement (RMP/EIS, November 1994.) (Chapter 3). The following resources are also discussed in greater detail in the project file.

B. SPECIFIC RESOURCE DESCRIPTIONS

Vegetation

Most forest stands in the Upper Coast Fork Willamette Watershed are currently in early- or mid-seral stages. Approximately 15.2% of the federal forested land in the watershed is in a late-successional condition. The watershed is composed of a mosaic of agricultural land, recent clearcuts, and young stands.

The project area is located in the middle of Connectivity Block C232-21; the project area is not included in the 25-30% to be managed as late-successional forest. Lands adjacent to the project area are privately owned.

The project area is composed of multiple stands which originated from natural seeding following logging operations in the mid-40's. The regeneration was classified stocked established in 1955. The entire area has been precommercially thinned, and fertilizer was aerially applied in 1991.

The common stand condition is a well-stocked overstory of Douglas-fir with scattered hemlock and a few western redcedars. Numerous canopy gaps and irregular spacing have produced a heterogeneous stand with a wide range of diameters, particularly in the western portion. The stand is experiencing some suppression mortality in the fully stocked areas. Ground vegetation consists of salal, swordfern, Oregon-grape, vine maple, and other common natives. Snags are generally sparse throughout the stand, and downed woody debris is widely distributed at generally low density in decay class 3 and 4 wood exceeding 20 inches in diameter. Isolated, small areas of root rot are causing some snags and blowdown. A stand exam was performed in the project area in 1996. Stand age is approximately 46 years, average diameter at breast height is 14 inches, and there are approximately 200 TPA.

Wildlife

The project area is located within the South Willamette/North Umpqua Area of Concern, which is focused on maintaining dispersal habitat for owls between the Coast Range and the Cascade Range. Dispersal habitat for spotted owls within the Wilson Creek subwatershed is low. According to the Cottage Grove Lake/Big River Watershed Analysis, only 24% of the subwatershed is older than 45 years old.

The project area is also located on the edge of the provincial home range (1.2 miles) of an historic spotted owl site. However, the last owl residing there was in 1990. Owls from the next nearest site (approximately 2 miles away) have been observed foraging at the historic site. The project area could provide low quality foraging habitat for the historic site and dispersal habitat for non-resident spotted owls seeking a territory.

The project area does not have late-successional forest characteristics at this time. The stand may support small populations of small mammal species but many of the habitat features that species such as flying squirrels and red-backed voles require, namely snags and downed wood, are scarce. Two active and one inactive red tree vole nests have been found in the stand. Surveys conducted to protocol in the Spring of 1999 found 24 *Megomphix hemphilli* (Oregon megomphix), three *Prophysaon coeruleum* (blue gray tail-dropper), and two *Prophysaon dubium* (Papillose tail-dropper).

Aquatic and Riparian Resources and Fisheries

The elevations in the project area range from approximately 1100 to 1400 feet. The project area is at elevations that are considered lowland, which would be expected to experience rain-on-snow events infrequently.

The project area is located above the Cottage Grove dam where there are no threatened or endangered fish species listed under the Endangered Species Act. It is positioned in the lower portion of Wilson Creek East Fork seventh field watershed, approximately 2 miles upstream from the confluence with Cottage Grove Reservoir. Wilson Creek East Fork is a 4th-order stream that provides habitat primarily for rainbow and cutthroat trout, sculpin species, and other aquatic-dependent species. In the vicinity of the project area, Wilson Creek has a stream gradient ranging from 2 to 6 percent. The dominate habitat type is riffles and scour pools with intermittent step falls and cascades. Channel substrate is predominately cobble, bedrock, and gravel. The channel is constrained by multiple terraces in a broad valley. The riparian area is dominated by hardwood trees, predominately red alder with diameters ranging from 6-16 inches. Instream "key" pieces of wood (wood that is at least 24 inches in diameter and 32 feet in length) are limited throughout the system.

Ten streams (1-3, 5-8, 10, and 12-13), one spring (4) and two wetlands (9 and 11) were identified within or immediately adjacent to the project area. The major stream in the project area is Wilson Creek

(Stream 12), located in the center of the area. Wilson Creek drains west to northwest toward Cottage Grove Reservoir, located approximately two miles west of the project area. Features 1-5 drain north to Wilson Creek. Features 6-11 and 13 drain southwest to west to Wilson Creek.

The closest beneficial use is resident fish and aquatic life in Wilson Creek, Stream 13, and portions of Streams 6 and 8. There is also irrigation use from the Cottage Grove Reservoir.

All streams were surveyed for the presence of fish and/or accessible suitable habitat. Site surveys documented a small to moderate size population of cutthroat in Wilson Creek (Streams 12 and 13). Although site surveys documented no fish presence, the lower 250 feet of Stream 6 and the lower 400 feet of Stream 8 are accessible to fish and have potential spawning and rearing habitat; they are considered fishbearing even though no fish were found in these areas. These reaches may be utilized intermittently during the year, potentially as moderate to high flow or temperature refuge.

Most of the timber of this subwatershed was extensively harvested during the 1950s. Harvest activities included riparian vegetation removal and large wood removal from stream channels. Riparian areas re-vegetated themselves naturally with red alder and other hardwood species. Large woody debris recruitment is very limited, therefore instream structure is also limited. An Oregon Department of Fish and Wildlife aquatic habitat survey (1997) conducted in Section 3, Township 22 South, Range 3 West (0.85 miles) documented no "key" pieces of wood and no complex pools. Pool frequency appears to be adequate but deep poles (greater than one meter) are extremely limited. West of and downstream from the project area is a private quarry which lies adjacent to Wilson Creek. Operations from the quarry have created a major impact on the quality and quantity of spawning and rearing habitat, and have negatively impacted access to upstream habitat. Most of the general habitat needs of fish such as deep resting pools, cover, certain temperature ranges, food supply, and clean gravels for spawning are being minimally met.

Botany

No threatened, endangered or sensitive vascular plant species were found during 1997-1999 vascular plant surveys. Bryophyte, lichen, and fungi surveys have been completed. One *Otidea leporina*, a fungus for which known sites must be managed, was located.

V. DIRECT AND INDIRECT EFFECTS

All alternatives would have environmental effects. However, none of the alternatives would have effects beyond those described in the RMP EIS and the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl,* February 1994 (NSO FSEIS). Impacts based upon site specific analysis of the alternatives are described below.

A. UNAFFECTED RESOURCES

The following resources are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern, prime or unique farm lands, Native American religious concerns, solid or hazardous wastes, cultural resources, Wild and Scenic Rivers, Wilderness, minority populations, and low income populations.

B. ISSUE 1: How will timber harvest affect attainment of Aquatic Conservation Strategy (ACS) objectives at the watershed scale?

1. Alternative 1

Alternative 1 includes no density management within Riparian Reserves. Activities proposed in Riparian Reserves include placement of a cross drain culvert under an existing rocked road, three landings, and three designated skid trails. The following is a site-specific analysis of the effect of Alternative 1 on attainment of the ACS objectives.

Objective 1: Alternative 1 is likely to maintain and not prevent or retard the natural rate of restoration of the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted because of the untreated Riparian Reserves and the distance between newly constructed roads and hydrology features. Alternative 1 would maintain existing important aquatic habitat parameters such as off-channel habitat, floodplain connectivity, and refugia. As there would be no harvest in the Riparian Reserves, Alternative 1 would not hasten the development of late-successional structural characteristics in the residual stand, such as larger diameter trees and canopy layering, by lessening competition.

Objective 2: Alternative 1 would maintain and not prevent or retard restoration of the spatial and temporal connectivity within and between watersheds because of the influence of the residual stand and the untreated Riparian Reserves. Drainage network connections would be protected by the uncut areas within the Riparian Reserves around all streams and other hydrology features. As stated above, no new stream crossing or corridor crossing of any hydrology feature is part of Alternative 1.

Objective 3: Alternative 1 would maintain the physical integrity of the aquatic systems because the residual stand in areas thinned would maintain root strength; the untreated Riparian Reserves would ensure that thinning would not affect streambank integrity; and management activities throughout the project area would not cause any alteration of peak water flows that could affect channel morphology because the unthinned buffers would filter potential sediments before they reach the streams. If sedimentation were to occur, the impact to fish habitat at the project level would likely be minimal and cease upon completion of operations. However, these localized impacts are not expected to be of a magnitude that would substantially alter current conditions at the fifth field scale.

Objective 4: Alternative 1 would maintain water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Alternative 1 would not alter stream temperature because the untreated Riparian Reserves adjacent to the streams would maintain existing shading of streams. The proposed landings on Road No. 21-3-33 would be cleared to the south of the road. The proposed landing on Road No. 22-3-3.2 would be cleared to the east of the existing road. No new clearings associated with these landings is expected to occur on the stream side of these roads. The retention of 105 TPA in the upland areas on the majority of the unit would minimize the potential change to existing stream side shading conditions. No new stream crossings or yarding corridors through stream channels are proposed. This would eliminate direct physical impacts to stream channels which would impact water quality. All new haul roads would be located a minimum of 200 feet from stream channels.

The greatest risk to water quality would be chemical contamination to Wilson Creek from a fuel spill or mechanical breakdown such as a hydraulic leak. Hazardous materials would be stored in durable containers and located so that any accidental spill would be contained and not drain into riparian/wetland areas.

Objective 5: Alternative 1 would maintain and not prevent or retard the restoration of the sediment regime under which this aquatic ecosystem evolved. The new roads would pose a low risk of sedimentation because they would be more than one site tree from streams and because of the road design features. There would be some risk of sedimentation from the landings on Roads No. 21-3-33 and 22-3-3.2 due to the proximity and connectedness to ditch lines to Wilson Creek and Stream 8. Some erosion is possible from use of the new roads, landings, and skid trails during operations but this would likely be minor because of the BMPs. Design features related to the ditch line, season of operations, and the cross drain culvert to be installed west of the landing area for the westernmost skid road would further reduce the risk of sedimentation, as would the wide reserves around all streams.

The use of existing roads for timber haul could produce a short-term increase in sedimentation because the existing roads route sediment/flow via ditchlines to cross drain culverts and stream

crossings. Some surface erosion occurs from nearly all roads. The amount of sediments and the impact would likely be low for this action because of the design features and maintenance during operations. The increase in traffic use and subsequent erosion of the running surface due to this action would likely be low and short term (1-3 seasons). No to minimal disturbance of cut and fill slope vegetation of existing roads would be expected other than in the locations of the landings on the existing roads.

Objective 6: Alternative 1 would maintain and not prevent or retard the restoration of in stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. Alternative 1 could contribute to an increase in summer low flows and overall water yield because of the reduction in evapotranspiration and interception due to the removal of some of the trees. The impact would be expected to be low because a high percentage of the existing vegetation would be retained. The low elevation of the project area and the high level of canopy retention would greatly minimize the potential for greater snow accumulation and snow melt that is associated with rain-on-snow events. New roads are unlikely to extend the length of drainage networks because of the design features of the roads. An increase in compaction would be expected from the proposed yarding methods. Subsoiling skid trails would likely ameliorate much of the compaction impacts. Subsoiling Spur A, an existing road, would have the benefit of reducing compaction on approximately ½ acre.

Effects on the timing and magnitude of peak flows would be expected to be low. Most of the factors associated with changes to peak flow would be minimally affected as a result of this action. It is estimated that approximately 1 acre would be temporarily compacted from new roads and landings, and 1-6 acres of compaction from yarding could occur temporarily. Subsoiling of these areas upon completion of operations would cause compaction impacts to be low. Changes to peak flow from evapotranspiration and interception decreases would most likely be increases to small, frequent flow events from late summer to early winter when less precipitation is needed to recharge soil moisture.

Objective 7: Alternative 1 would maintain and not prevent or retard the restoration of the timing, variability and duration of floodplain inundation and water table elevation because much of the vegetative cover of the project area would be retained; riparian vegetation would remain undisturbed, and no new roads or yarding corridors are proposed across these features.

Objective 8: Alternative 1 would not prevent or retard the restoration of the species composition and structural diversity of the canopy in the riparian zone. Alternative 1 would not have the beneficial impact found with Alternatives 2 or 5 of speeding the development of large trees and layered understory canopies within the Riparian Reserves. It would not hasten the development of a future supply of large woody debris to maintain and contribute to the restoration of the physical complexity of the aquatic system.

Objective 9: Alternative 1 would not prevent or retard restoration of habitat to support well-distributed populations of some riparian-dependent species. Native riparian-dependent plant species would likely be sufficiently protected by the untreated Riparian Reserves.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 1 is consistent with the ACS and the objectives for the Riparian Reserves, but would delay attainment of Objectives 1, 3 and 8 relative to Alternatives 2 and 5.

2. Alternative 2

Alternative 2 includes density management within Riparian Reserves that would promote attainment of ACS objectives, and cable or ground-based yarding and construction of two temporary spurs to help achieve these objectives. The other activities proposed in Riparian Reserves are placement of a cross drain culvert under an existing rocked road, and a landing area cleared on Road No. 22-3-3.2, as described in Alternative 1. Site-specific conditions in this project area are consistent with the general discussion in the Cottage Grove Lake/Big River Watershed analysis, which identified management opportunities for projects in Riparian Reserves. That analysis specifically addressed

density management treatments in stands where thinning would promote faster development of large trees with fuller crowns (Cottage Grove Lake/Big River Watershed Analysis, Chapter 4, pages 4-5).

The following is a site-specific analysis of the effect of Alternative 2 on attainment of the ACS objectives.

Objective 1: Alternative 2's effects on Objective 1 would be similar to Alternative 1, except that Alternative 2 would hasten the development of late-successional structural characteristics in the residual stand, such as larger diameter trees and canopy layering, through treatment of the outer Riparian Reserves, thereby lessening competition. This would restore the diversity and complexity of the watershed at a faster rate than Alternatives 1, 3, 4 or 6.

Objective 2: Alternative 2's effects on Objective 2 would be similar to Alternative 1 because of the influence of the residual stand and the untreated portions of Riparian Reserves.

Objective 3: Alternative 2's effects on Objective 3 would be similar to Alternative 1 because the untreated portions of Riparian Reserves would ensure that thinning would not affect streambank integrity or stream channels. Silvicultural treatments within the Riparian Reserve have the potential to improve large wood delivery to fish-bearing habitat over the long term, which would in turn help restore the sediment and flow regimes, the deposition of gravels, and the formation of deep pools, backwater and off-channel aquatic habitat. The construction of Spurs C and D creates a potential risk of sedimentation to Wilson Creek, but this risk would be less than Alternative 1 due to the reduced disturbance and activity occurring on Road No. 21-3-33. If any sedimentation were to occur, impact to downstream fish habitat would be expected to be negligible.

Objective 4: Alternative 2's effects on Objective 4 would be similar to Alternative 1. Alternative 2 would not alter stream temperature because the untreated portions of Riparian Reserves (100-300 feet from the streams) adjacent to the streams, along with retention of 105 TPA in the outer Riparian Reserves, would maintain existing shading of streams. The risk of hazardous materials spills into Wilson Creek would be lessened significantly under this alternative; however, the risk remains the same to Stream 8.

Objective 5: Alternative 2's effects on Objective 5 would be similar to or slightly different than Alternative 1. The differences are best explained in terms of different design features for each alternative. For example, thinning areas closer to the streams could slightly increase the potential of sediment reaching a stream channel. This risk would still likely be low; the untreated portions of Riparian Reserves would adequately filter any sediment from the uplands before it reached the stream because of the generally gentle topography, the low risk of hillslope erosion, and the low risk of substantial sediment inputs from upland areas.

Thinning in Riparian Reserves would speed the development of a future supply of larger woody debris to help restore the sediment regime, which would not occur under Alternative 1. Any erosion that might occur from new roads, skid trails or yarding corridors within the Riparian Reserves would still be unlikely to reach stream channels.

Finally, the risk of sedimentation from the transportation of logs may be slightly higher than Alternative 1 because more volume would be hauled over the existing and new roads. The risk of sedimentation reaching Wilson Creek would be lower than Alternative 1 because there would not be landings on Road No. 21-3-33, and therefore no disturbance to the ditch line and road cut banks..

Objective 6: Alternative 2's effects on Objective 6 would be similar to or slightly higher than Alternative 1. Changes to the timing and magnitude of flows would be similar to or slightly higher than Alternative 1 due to a greater amount of area harvested and the resulting changes to evapotranspiration, interception, and compaction.

Objective 7: Alternative 2's effects on Objective 7 would be similar to Alternative 1.

Objective 8: Alternative 2 would contribute to the restoration of the species composition and structural diversity of plant communities and habitat to support well-distributed populations of some riparian-dependent species by speeding the development of late-successional forest characteristics, such as large trees and layered understory canopies, within the Riparian Reserves. It would cause a reduction in canopy closure for 2-3 decades in the thinned areas, which could result in some micro-climatic alteration or other adverse effects for species that prefer complete canopy closure or that do not tolerate disturbance. Any such effect would be minor because of the effect of the residual trees, the extensive untreated reserve areas, and because of the current poor habitat condition of the stands for most species associated with late-successional forests.

Thinning in Riparian Reserves would speed the development of a future supply of large woody debris, which would maintain and contribute to the restoration of the physical complexity of the aquatic system.

Objective 9: Alternative 2's effects on Objective 9 would be similar to Alternative 1.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 2 is consistent with the ACS and the objectives for the Riparian Reserves, and would speed attainment of ACS objectives 1, 3, and 8.

3. Alternative 3

Alternative 3 includes no management within Riparian Reserves. The activities proposed in Riparian Reserves are identical to Alternative 1 except for **Retention**. Total timber volume harvested would be lower than Alternative 1 because there would be no heavy thinning area. Alternative 3 would have impacts on ACS objectives 1-4 and 7-9 similar to Alternative 1. Analysis of Alternative 3's impacts on ACS objectives 5 and 6 follows.

Objective 5: Alternative 3's effects on Objective 5 would be similar to or slightly lower than Alternatives 1 and 2, mainly due to slightly less timber volume hauled. The risk of sedimentation from the transportation of logs may be slightly lower than Alternatives 1 and 2. The risk of sedimentation from landings would be similar to Alternative 1 and slightly higher than Alternative 2.

Objective 6: Alternative 3's effects on Objective 6 would be similar to or slightly lower than Alternatives 1 and 2. Changes to the timing and magnitude of flows would be similar to slightly lower than Alternatives 1 and 2 due to a lesser amount of timber volume harvested and the resulting changes to evapotranspiration, interception, and compaction.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 3 is consistent with the ACS and the objectives for the Riparian Reserves, but would delay attainment of Objectives 1, 3 and 8 relative to Alternatives 2 and 5.

4. Alternative 4

Alternative 4 includes no management within Riparian Reserves. Alternative 4 would have impacts on ACS Objectives 1-4 and 7-9 similar to Alternative 1. Analysis of Alternative 4's impacts on ACS objectives 5 and 6 follows.

Objective 5: Alternative 4's effects on Objective 5 would be similar to or slightly lower than Alternatives 1 and 2, mainly due to slightly less area harvested. The risk of sedimentation from the transportation of logs may be slightly lower than Alternative 1 and Alternative 2. The risk of sedimentation from landings would be slightly lower than all other action alternatives. Spur E would pose little to no risk of sedimentation as it would not drain toward existing roads, would be greater than 200 feet from any stream channel, and would be subsoiled and blocked upon completion of the project.

Objective 6: Alternative 4's effects on Objective 6 would be similar to or slightly lower than Alternatives 1 and 2. Changes to the timing and magnitude of flows would be similar to slightly lower

than Alternatives 1 and 2 due to a lesser amount of volume harvested (fewer acres) and the associated changes to evapotranspiration, interception, and compaction.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 4 is consistent with the ACS, but would delay attainment of Objectives 1, 3 and 8 relative to Alternative 2 and 5.

5. Alternative 5 (Proposed Action)

Alternative 5 includes management activities within Riparian Reserves that are similar to Alternative 2, except that there would be no road or landing construction within Riparian Reserves. Alternative 5 would have impacts on ACS objectives 1, 3 and 8 similar to Alternative 2, and on objectives 2, 4, 7 and 9 similar to Alternative 1. Analysis of Alternative 5's impacts on ACS objectives 5 and 6 follows.

Objective 5: Alternative 5's effects on Objective 5 would be lower than Alternatives 1, 2 and 3, and similar to slightly higher than Alternative 4. The risk of sedimentation from the transportation of logs would be lower than Alternative 2, similar to Alternative 1, and higher than Alternatives 3 and 4. There would be no risk of sedimentation from landings on Roads No. 21-3-33 and 22-3-3.4 as there would be with Alternative 1 or Alternative 3. There would be no risk of sedimentation from construction of Spurs C and D as there would be with Alternative 2. Spur E would pose little to no risk of sedimentation as it would not drain toward existing roads, would be greater than 200 feet from any stream channel, and would be subsoiled and blocked upon completion of the project.

Objective 6: Alternative 5's effects on Objective 6 would be similar to Alternative 1, lower than Alternative 2, and slightly higher than Alternatives 3 and 4. Compaction would be similar to Alternative 1. Alternative 5 would include the construction of slightly more temporary road than the other action alternatives. Alternative 5 would involve no landings or temporary road construction in Riparian Reserves, unlike Alternatives 1, 2, or 3. Alternative 5 would involve a smaller harvest area than Alternative 2. Changes to the timing and magnitude of flows would be expected to be similar to Alternative 1, lower than Alternative 2, and similar to slightly higher than Alternative 3 or 4.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 5 is consistent with the ACS and the objectives for the Riparian Reserves, and would speed attainment of ACS objectives 1, 3, and 8.

6. Alternative 6

Alternative 6 includes no management within the project area. Alternative 6 would maintain existing trends. Alternative 6 would not retard attainment of Objectives 2, 4, 6, 7, or 9. Riparian conditions would continue to respond to existing processes, with some recovery of aquatic habitat expected over time. Analysis of Alternative 6's impacts on ACS Objectives 1, 3, 5, 6, and 8 follows.

Objective 1: Alternative 6 would not hasten the development of late-successional characteristics in the Riparian Reserves as would Alternatives 2 or 5.

Objective 3: Alternative 6 would not have the effect of speeding the development of a future supply of large woody debris stream inputs to help restore the sediment and flow regimes, the deposition of gravels, and the formation of deep pools, back-water and off-channel aquatic habitat that would occur with Alternative 2 or 5.

Objective 5: Alternative 6 would not have the effect of speeding the development of a future supply of larger woody debris to help restore the sediment regime that would occur with Alternative 2 or 5. Alternative 6 would not increase the risk of short-term sedimentation or compaction that would occur with the action alternatives.

Objective 6: Alternative 6 would not change the timing and magnitude of flow as would occur with the action alternatives.

Objective 8: Alternative 6 would not contribute to the restoration of species composition and structural diversity of the canopy in the riparian zone by speeding the development of large trees and

layered understory canopies within the Riparian Reserves, which would happen with Alternative 2 or 5.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative 6 is consistent with the ACS, but would delay attainment of Objectives 1, 3 and 8 relative to Alternatives 2 and 5.

Table 2 summarizes each alternatives attainments of ACS objectives:

Table 2–ACS Objectives Summary Comparison

ACS Objective	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Proposed Action	Alternative 6
Objective 1 Watershed and Landscape Features	*Maintain*	*Speed restoration*	*Maintain*	*Maintain*	*Speed restoration*	*Maintain*
Objective 2 Spatial and Temporal Connectivity	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Objective 3 Physical Integrity	*Maintain*	*Speed restoration*	*Maintain*	*Maintain*	*Speed restoration*	*Maintain*
Objective 4 Water Quality	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Objective 5 Sediment Regime	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Objective 6 In-stream Flows	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Objective 7 Floodplain Inundation	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Objective 8 Species Composition and Structural Diversity	*Maintain*	*Speed restoration*	*Maintain*	*Maintain*	*Speed restoration*	*Maintain*
Objective 9 Habitat for Native Species	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*	*Maintain*
Overall	Would neither prevent nor retard attainment of ACS objectives	Would speed attainment of ACS objectives 1, 3, and 8	Would neither prevent nor retard attainment of ACS objectives	Would neither prevent nor retard attainment of ACS objectives	Would speed attainment of ACS objectives 1, 3, and 8	Would neither prevent nor retard attainment of ACS objectives

C. ISSUE 2: How will timber harvests affect northern spotted owl foraging and dispersal habitat?

1. Alternative 1

The prescription for Alternative 1 would keep canopy closure above 40%, maintaining dispersal habitat. However, it would be degraded because the canopy would be opened. The Riparian Reserves would not be treated, allowing dispersing owls an area within the stand with full canopy closure. The full canopy closure would make owls less vulnerable to predators, provide thermal protection, and preserve the Riparian Reserves as refugia for prey species. Preserving an untreated area is especially important in this vicinity because the project area is surrounded by clearcuts and young plantations.

Alternative 1 would remove foraging habitat by opening up the canopy, possibly felling snags that are considered to be dangerous, and possibly disturbing the downed wood. Research has shown that spotted owls avoid foraging in thinned stands for at least 10 years (Janice Reid, personal

communication). As the stand grows and the canopy closes (approximately 10-20 years for the moderate thin and 20-40 years for the heavy thin), foraging habitat would improve. Accelerating the development of late-successional stand characteristics as a result of the density management thin would ultimately benefit spotted owls.

2. Alternative 2

Alternative 2 would have greater effects than Alternative 1 because approximately 15 acres of Riparian Reserves would be treated in addition to the Matrix, resulting in extremely limited untreated forest in the vicinity, making the project area exceedingly poor quality dispersal habitat. Accelerating the development of late-successional stand characteristics as a result of the density management thin would ultimately benefit spotted owls. Alternative 2 may affect but is not likely to adversely affect northern spotted owls.

3. Alternative 3

Alternative 3 would have lesser effects than Alternative 1 or Alternative 2 because it is a moderate thin only with no treatment in the Riparian Reserves. The canopy would close more quickly than in an alternative with a heavy thin prescription (10-20 years versus 20-40 years). The untreated Riparian Reserves would provide the same benefits to owls as Alternative 1. However, without the heavy thin, the stand might not develop late-successional forest characteristics to the same degree as Alternatives 1 or 2. Alternative 3 may affect but is not likely to adversely affect northern spotted owls.

4. Alternative 4

Alternative 4 would have slightly less effect than Alternative 1 or Alternative 2 because no haul roads or skid trails would be built within the Riparian Reserves. Dispersal habitat for owls would not be degraded within the Riparian Reserves from gaps associated with roads. Roads can put spotted owls at greater risk from predation and can remove habitat for the owl's prey species, small mammals. Alternative 4 may affect but is not likely to adversely affect northern spotted owls.

5. Alternative 5 (Proposed Action)

Alternative 5 would have slightly less effect than Alternative 2 because no roads or skid roads would be built within the Riparian Reserves, and 2 fewer Riparian Reserve acres would be treated. The project area would still be poor quality dispersal habitat; however, dispersal habitat for owls would not be degraded within the Riparian Reserves from gaps associated with roads or skid roads. Alternative 5 may affect but is not likely to adversely affect northern spotted owls.

6. Alternative 6

Alternative 6 would not affect dispersal habitat either negatively within the first 20-40 years or positively as the forest stand developed late-successional forest characteristics. Dispersal habitat would not be degraded and foraging habitat would be maintained. The forest stand, however, would not be expected to develop late-successional forest characteristics, including large trees, as quickly or to the same extent as it would with a density management thin. Northern spotted owls would not be affected.

D. CUMULATIVE EFFECTS

This analysis incorporates by reference the analysis of cumulative effects in the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (NSO FSEIS) (Chapter 3 & 4, pp. 4-10) and the RMP EIS (Chapter 4). Those documents analyze most cumulative effects of timber harvest and other related management activities. None of the alternatives analyzed here would have cumulative effects on soils or air quality beyond those effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

On private lands in the watershed, more intensive timber management actions, including clearcutting and broadcast burning, are occurring and are likely to continue. Also, it is possible that some forest stands on

private land will be converted to non-forest land, for either agricultural or residential use. Private lands provide habitat for deer, elk, and neotropical birds but will primarily alternate between early- to mid-seral stages.

In the short term, (10-40 years), any of the action alternatives, together with past and current harvesting and other disturbances, could contribute to a cumulative degradation or loss of spotted owl habitat within the subwatershed. The Wilson Creek subwatershed is approximately 6,400 acres in size. It comprises approximately 64 acres of suitable spotted owl habitat (80 years and older), 1,470 acres of dispersal/foraging habitat (stands 45-79 years old), 3,070 acres of young stands between 16-45 years old and 1,280 acres of young stands 15 years old and younger; the rest is not coniferous forest. Alternative 1 or Alternative 3 would degrade approximately 6% (85 acres); Alternative 2 would degrade approximately 7% (100 acres); Alternative 4 would degrade approximately 5% (78 acres); and Alternative 5 would degrade approximately 6% (93 acres) of the dispersal habitat in the subwatershed. In the long term (more than 40 years), the action alternatives could accelerate the development of mature and late-successional forest characteristics in the subwatershed, thereby improving spotted owl habitat, and could have a cumulative effect of increasing the habitat area for species associated with late-successional forests as the stand ages (NSO FSEIS Chapters 3 & 4, pp. 49, and Appendix B, pp. 47-48; Tappeiner et al. 1992).

By maintaining a dense, even-aged stand, Alternative 6 would contribute to a cumulative effect of future mature stands within the watershed that lack old-growth characteristics, a negative effect on spotted owls and other wildlife species associated with late-successional forests.

Each of the action alternatives, together with other harvesting and road construction, could cause a minor increase in water flows and overall water yield. This effect would diminish as forest regrowth occurs.

Alternative 6 would not contribute to an increase in water flows or water yield.

VI. CONSULTATION AND COORDINATION

A. LIST OF PREPARERS

The alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists.

Jeff Apel	Engineering
Alison Center	Threatened and Endangered Wildlife Species
Alan Corbin	Timber Management
Chuck Fairchild	Botany
Richard Hardt	Ecology
Pete O'Toole	Silviculture
Mike Southard	Cultural Resources
Steve Steiner	Hydrology
Chuck Vostal	Fisheries
Molly Widmer	Botany
Barry Williams	Soils

B. CONSULTATION

Pursuant to the Endangered Species Act, consultation was completed with the U.S. Fish and Wildlife Service, which found that the action " ...[is] not likely to jeopardize the continued existence of the spotted owl."

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires Federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) identified under the Act. EFH encompasses a wide range of aquatic habitats, such as streams, rivers, marine and estuarine habitats. Some of the species managed under the MSFCMA are anadromous fish, such as

Pacific coast salmon, which spend most of their lives in the marine environment, but migrate to fresh water streams for spawning and juvenile rearing. EFH consultation is required for non-listed (ESA) Pacific coast salmon from Washington and Oregon coastal basins as well as populations in the middle and upper Columbia River basins.

This project area is located in the Upper Coast Fork Willamette, above Cottage Grove Dam, where Pacific coast salmon species do not have access. Therefore, the action alternatives, as described and analyzed in this EA, will have ***No Affect*** on waters and substrate necessary for Pacific coast salmon to spawn, breed, feed or grow to maturity.

The State Historic Preservation Office (SHPO) has been notified of this proposal and has determined, in accordance with 36 CFR 800.5(b), that the proposed undertaking would have no effect on cultural resources.

The Confederated Tribes of the Siletz and the Confederated Tribes of the Grand Ronde were notified of this project during the scoping process, requesting information regarding tribal issues or concerns relative to the project. No response was received.

C. PUBLIC PARTICIPATION

A public notice advertising the availability of this EA and preliminary FONSI was published in the Eugene Register-Guard on February 6, 2002. Additionally, the environmental assessment was sent to nine groups or businesses, seven state or local government agencies, and 14 individuals. A 30-day public comment period for the EA closed on March 8, 2002. One comment letter, from American Lands Alliance, was received, in which they supported selection of Alternative 4. The paragraphs below summarize specific comments of American Lands Alliance and the responses to their comments.

Comment: The project area is within the South Willamette/North Umpqua Area of Concern and a connectivity block. As such, the Riparian Reserve forests in the project area are expected to provide for owl foraging and connectivity in the short term.

Response: As stated in the EA (page 7), the focus of the Area of Concern is to maintain **dispersal** habitat for owls between the Coast Range and the Cascade Range. We recognize that the project area could provide foraging habitat, but because the project area lacks the characteristics of foraging habitat, it would be of **low quality**.

Comment: The Proposed Action would degrade 13 acres of foraging habitat in the Riparian Reserve at a time when foraging habitat in this watershed is in short supply.

Response: The project area is considered to be dispersal habitat, and could supply **low quality** foraging habitat. Approximately 70 acres of Riparian Reserve within the project area would remain untreated under the Proposed Action. Thinning would occur only within the outer 100 feet of selected Riparian Reserves, except for a small area in Unit B where thinning would occur up to the 21-3-33 road. At this point, the road lies between Unit B and Wilson Creek, and makes a logical unit boundary.

Comment: Alternative 4 would eliminate the need for Spur E.

Response: Roads have been re-designed in the field. The maps have been updated to reflect new road locations. Alternative 4 would only eliminate the last 250 feet of Spur E. The rest of Spur E would still be necessary to harvest the non-Riparian Reserves within Unit B.

Comment: We urge the BLM to draw a protection buffer around the red tree vole activity center that encompasses both active nests and the inactive nest in Unit A.

Response: In conformance with the "Management Recommendations for the Oregon Red Tree Vole, version 2.0" (USDI 2000), a 10-acre habitat area was drawn around the two active red tree vole nest trees that was connected to the Riparian Reserve for Stream 8. The 10-acre habitat area is intended to provide for protection of the physical integrity of the nest and retain adequate habitat for the expansion of the number of active nests at that site. The Management Recommendations did not contemplate including inactive nests in habitat areas greater than 300 feet from an active nest when the 10-acre reserve would retain adequate habitat for expansion.

Comment: ALA understands that only 24% of the forest in the subwatershed is older than 45 years. How does this relate to the requirement that 25-30% of the connectivity block be managed as late-successional forest? What percentage of the connectivity block is currently in late-successional forest?

Response: The connectivity block which contains the project area is approximately 900 acres. Of this, about 46 acres are at least 80 years old (roughly 5%). The Northwest Forest Plan's Standard and Guideline for connectivity blocks reads, "Overall, 25 to 30 percent of each block will be maintained in late-successional condition….Riparian Reserves count toward the 25 to 30 percent if they are in late-successional condition." The Northwest Forest Plan does not specify how connectivity blocks should be managed in the absence of the "25 to 30 percent to be maintained in late-successional condition." However, in the Cottage Grove Lake/Big River Watershed Analysis (USDI 1997), we identified areas within each connectivity block in the watershed that were currently providing the "best" habitat for late-successional forest related species. These were usually the oldest stands within the connectivity block. As noted on page 6 of the EA, the project area is not located in that portion of the connectivity block.

VII. REFERENCES

Tappeiner, J.C., et al. 1992 "Appendix G: managing stands for northern spotted owl habitat," pp. 481-525 in Fish and Wildlife Service. Recovery Plan for the Northern Spotted Owl - Draft. Portland, Oregon: USDI Fish and Wildlife Service.

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USDA Forest Service and USDI Bureau of Land Management. January 2001. Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, Portland, Oregon.

USDI, Bureau of Land Management. November 1994. Eugene District Proposed Resource Management Plan/Environmental Impact Statement. Eugene District Office, Eugene, Oregon.

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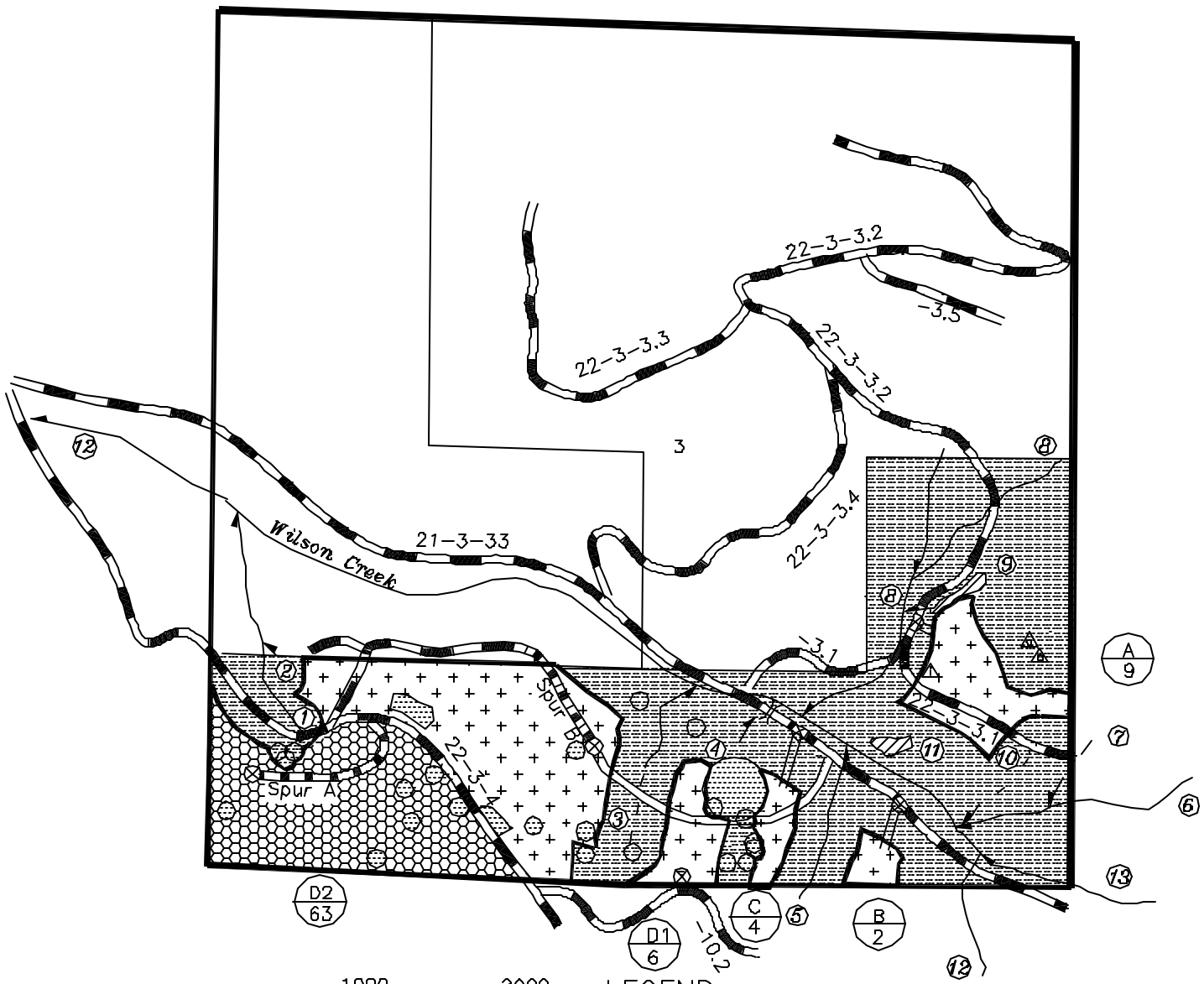
USDI, Bureau of Land Management. May 1997. Cottage Grove Lake/Big River Watershed Analysis. Eugene District Office, Eugene, Oregon. available at: http://www.edo.or.blm.gov/planning/watershed_analysis/

USDI, Bureau of Land Management. September 2000. Instruction Memorandum No. OR-2000-086, Management Recommendations for the Oregon Red Tree Vole *Arborimus longicaudus*, Version 2.0.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
South Valley I.D. Team Planning Map
Twin Prairie D.M. – T22S, R3W, Section 3
Alternative 1



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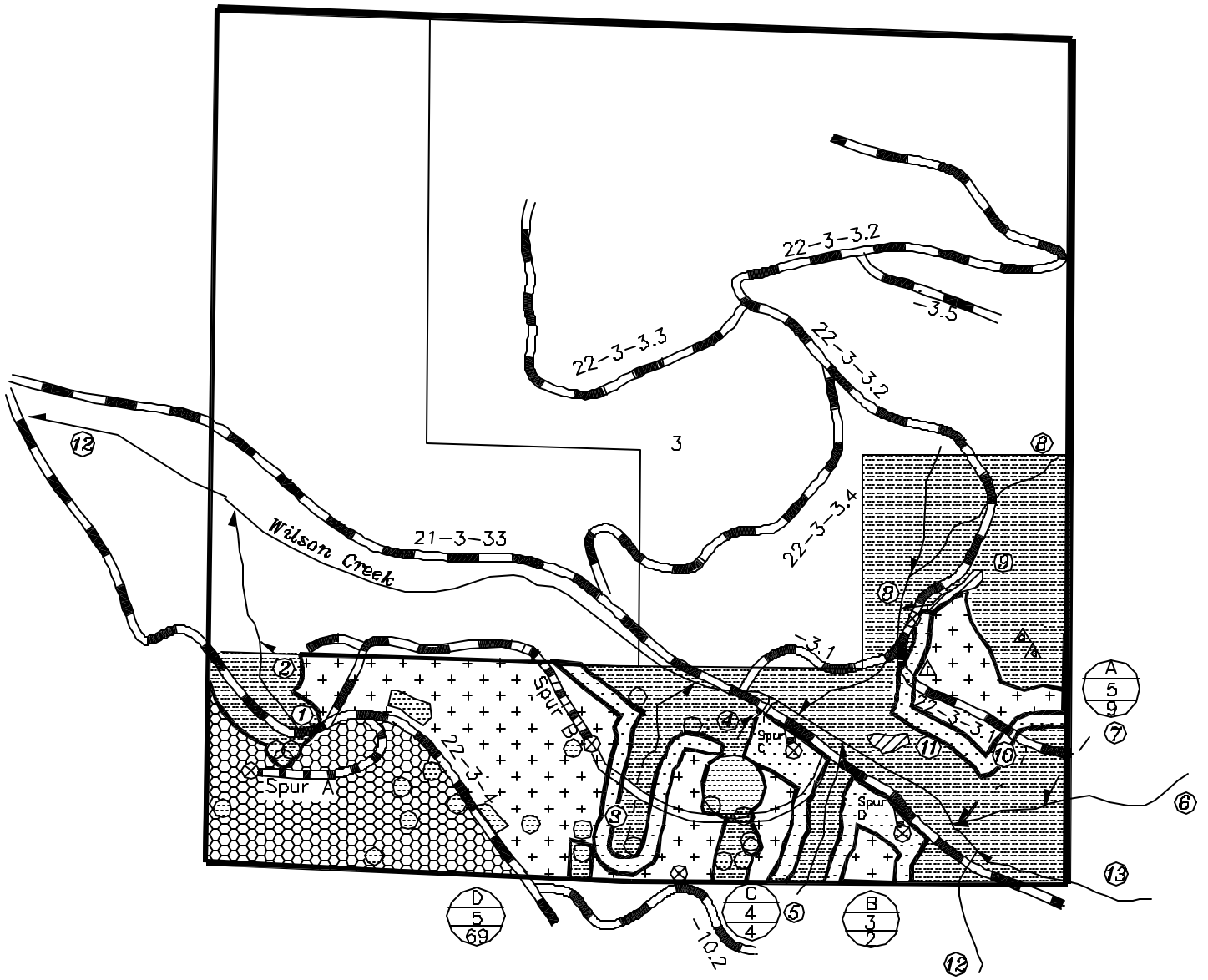
SCALE

LEGEND

- MODERATE THIN
- HEAVY THIN
- RESERVE AREA
- ACTIVE RED TREE VOLE NEST
- INACTIVE RED TREE VOLE NEST
- UNIT IDENTIFICATION (B / 2) NUMBER OF MATRIX ACRES
- ROCKED ROAD
- ROAD TO BE CONSTRUCTED
- ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- DESIGNATED SKID ROAD
- STREAM
- LANDING
- CULVERT

DATE: 3/19/02

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
South Valley I.D. Team Planning Map
Twin Prairie D.M. – T22S, R3W, Section 3
Alternative 2



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SCALE

LEGEND

- MODERATE THIN
- RIPARIAN RESERVE – MODERATE THIN
- HEAVY THIN
- RESERVE AREA
- ACTIVE RED TREE VOLE NEST
- INACTIVE RED TREE VOLE NEST
- ROCKED ROAD
- ROAD TO BE CONSTRUCTED
- ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- LANDING
- STREAM
- UNIT IDENTIFICATION
  NUMBER OF RIPARIAN RESERVE ACRES
  NUMBER OF MATRIX ACRES
- CULVERT

DATE: 3/19/02

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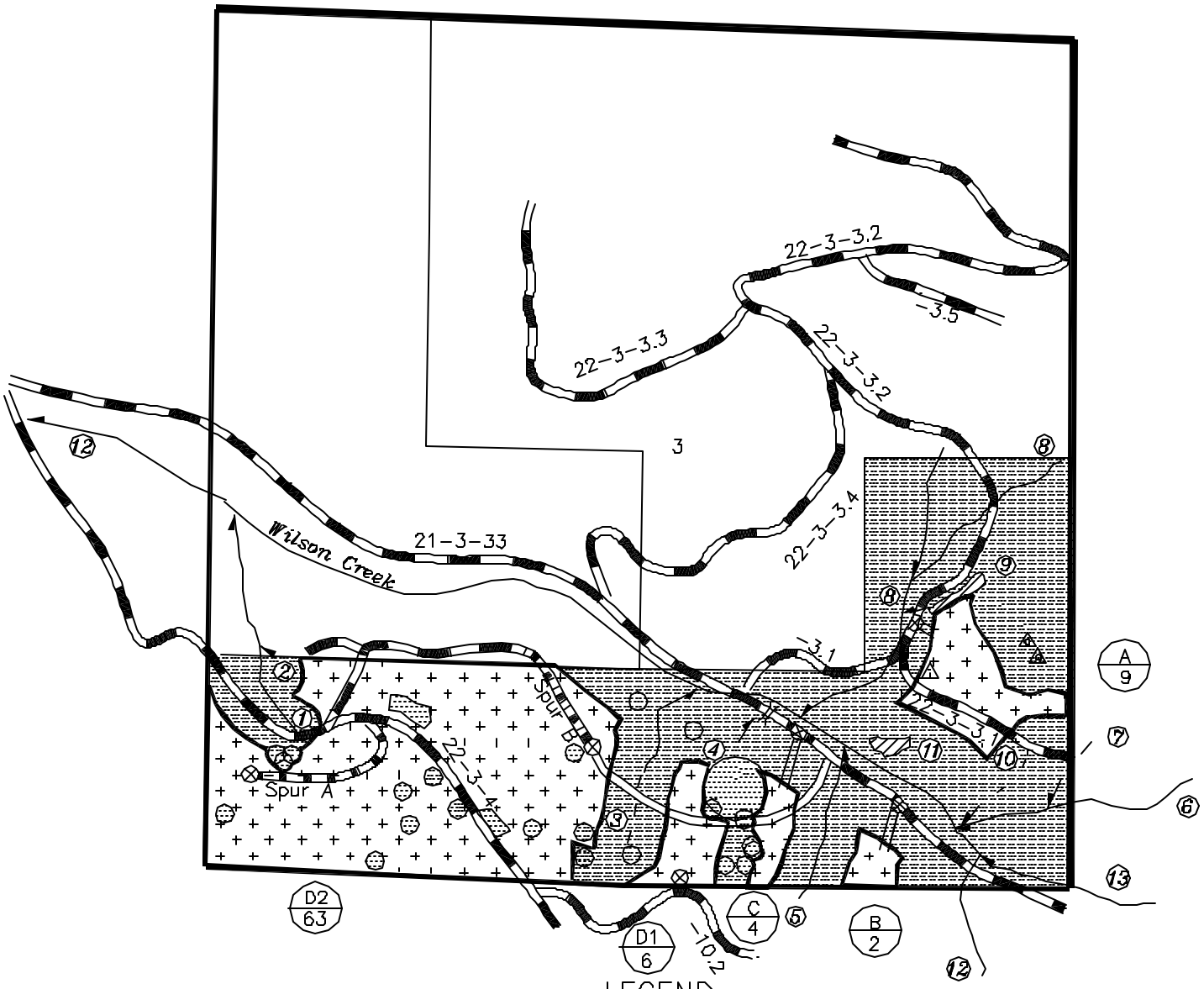
South Valley I.D. Team Planning Map
Twin Prairie D.M. – T22S, R3W, Section 3

Alternative 3



LEGEND

- MODERATE THIN
- RESERVE AREA
- ACTIVE RED TREE VOLE NEST
- INACTIVE RED TREE VOLE NEST
- UNIT IDENTIFICATION (B / 2) NUMBER OF MATRIX ACRES
- ROCKED ROAD
- ROAD TO BE CONSTRUCTED
- ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- DESIGNATED SKID ROAD
- STREAM
- LANDING
- CULVERT

DATE: 3/19/02

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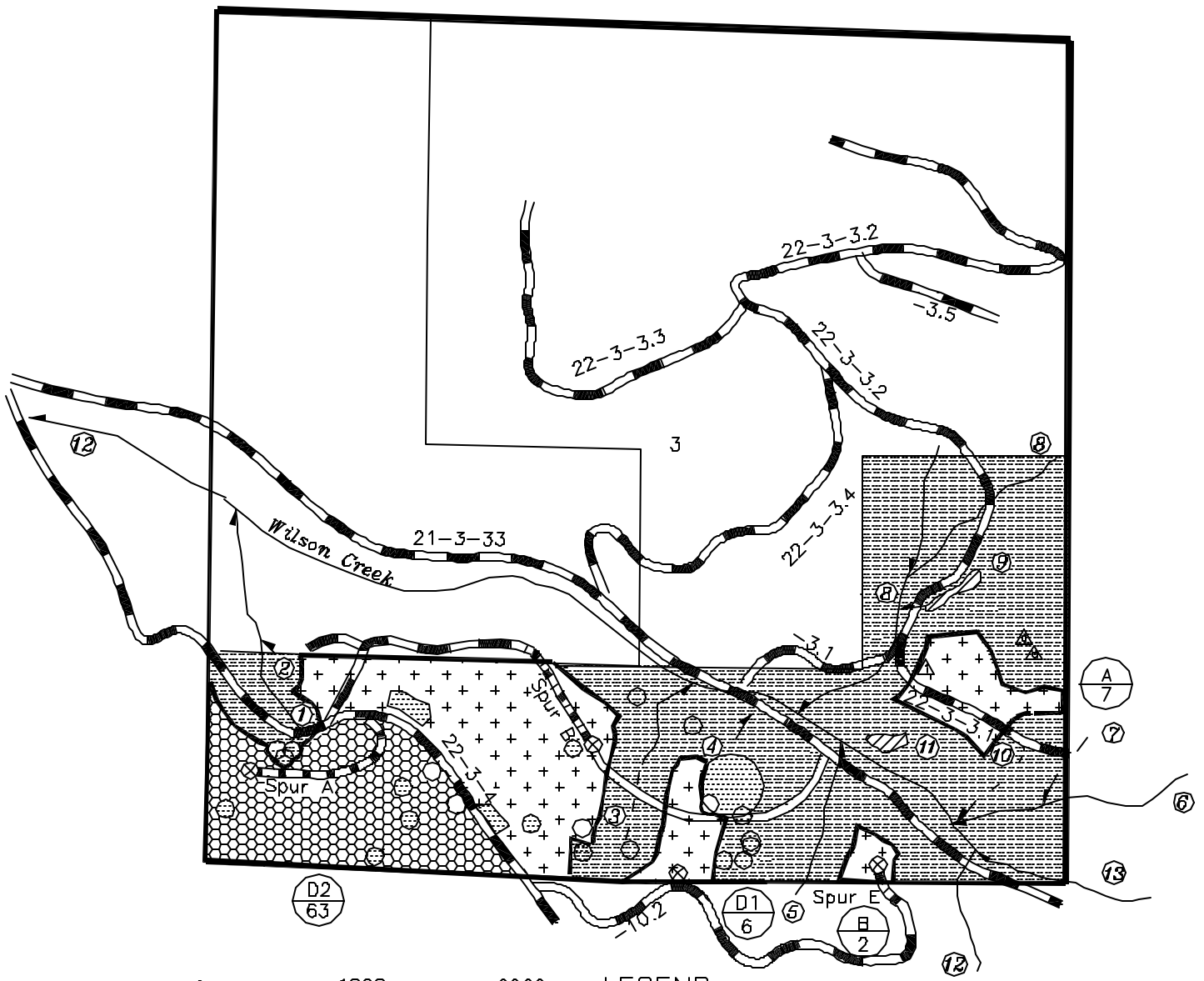
South Valley I.D. Team Planning Map
Twin Prairie D.M. – T22S, R3W, Section 3
Alternative 4



0 1000 2000
SCALE

LEGEND

- MODERATE THIN
- HEAVY THIN
- RESERVE AREA
- ACTIVE RED TREE VOLE NEST
- INACTIVE RED TREE VOLE NEST
- UNIT IDENTIFICATION / NUMBER OF MATRIX ACRES
- ROCKED ROAD
- ROAD TO BE CONSTRUCTED
- ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- STREAM
- LANDING

DATE: 3/19/02

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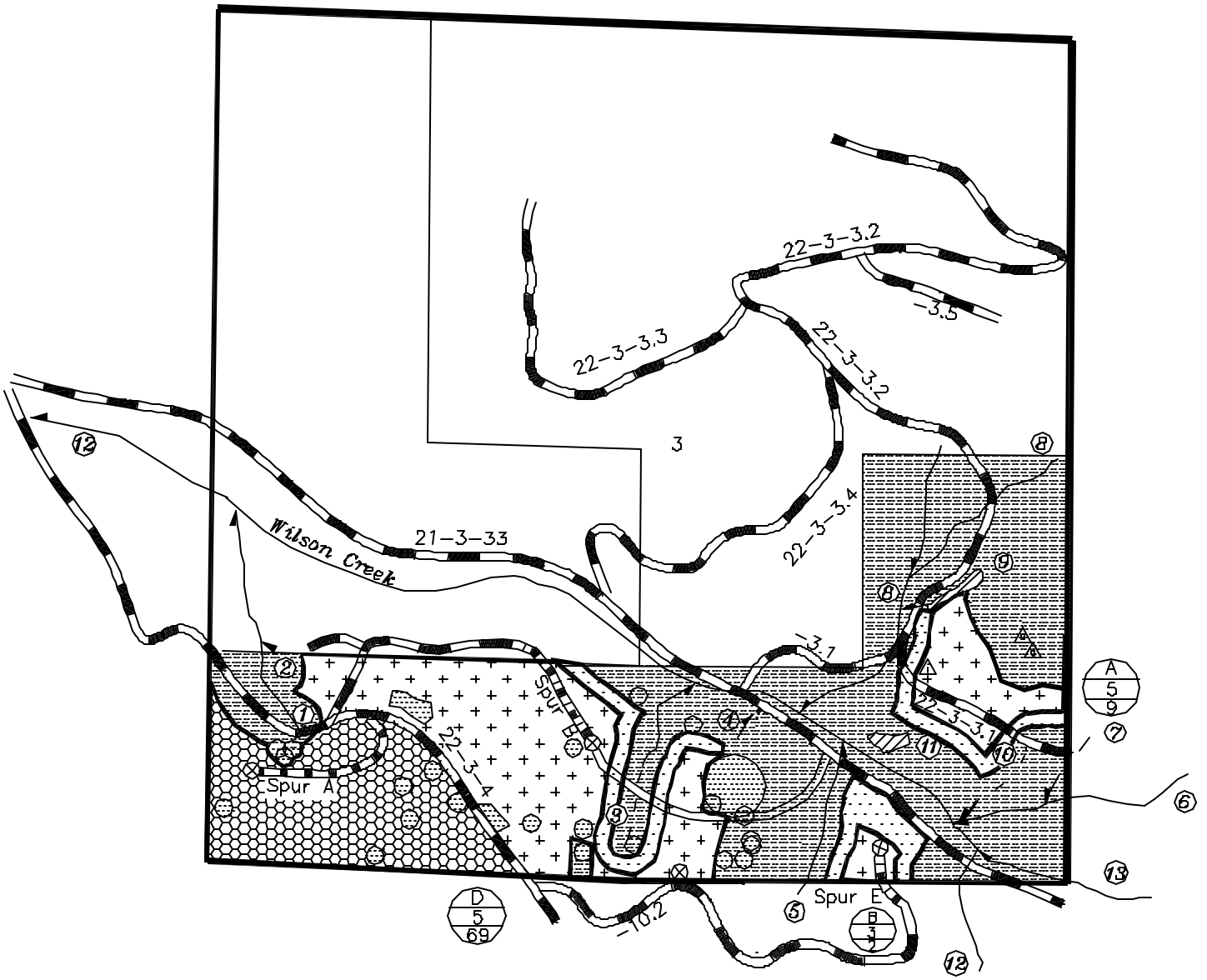
South Valley I.D. Team Planning Map
Twin Prairie D.M. – T22S, R3W, Section 3

Alternative 5
Preferred Alternative



0 1000 2000
SCALE

LEGEND

- MODERATE THIN
- RIPARIAN RESERVE – MODERATE THIN
- HEAVY THIN
- RESERVE AREA
- ACTIVE RED TREE VOLE NEST
- INACTIVE RED TREE VOLE NEST
- ROCKED ROAD
- ROAD TO BE CONSTRUCTED
- ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- LANDING
- STREAM
- UNIT IDENTIFICATION
  NUMBER OF RIPARIAN RESERVE ACRES
  NUMBER OF MATRIX ACRES

DATE: 3/19/02

ENVIRONMENTAL ASSESSMENT NO. OR090-02-06

Twin Prairie
Timber Sale Tract No. E-00-303

Prepared by
Janet Zentner
July 2002

United States
Department of the Interior
Bureau of Land Management
Eugene District Office
South Valley Resource Area